

Research Global

Natural rates – regime change or low for longer?

- **Despite high inflation and rapidly increasing interest rates right now, we in this paper argue that many of the structural factors that explain the decline in natural interest rates since the 1970s are still in place.**
- **The natural rate is a theoretical concept and is defined as the real interest rate consistent with maintaining economic growth at its trend rate/full employment with stable inflation.**
- **Key structural factors that have pushed down the natural interest are: Increasing life expectancy, slowly growing or decreasing working age population, lower productivity growth, higher mark-ups and risk premia, a shock from the financial crisis and higher inequality.**
- **These structural drivers have led to a situation where an increase in savings and a decrease in investments have been driving lower natural rates for a long time now, also leading to lower trend growth.**
- **The Nordics are mainly natural rate takers; what constitutes a natural real rate in the Nordics is primarily driven by international factors.**
- **What could change the natural rate? Increased fiscal spending and investments in defence, the green transition and digitalisation could raise potential growth and exert upward pressure on neutral rates going forward.**
- **In net, we expect the desire to save still to dominate the desire to invest going forward. We do not see any of the significant structural drivers reverting during the coming years, but think that higher and increasing public debt and possibly higher productivity growth could add some upwards pressure on natural rates.**
- **If we are right, this would imply that rates decline again after the current period of high inflation ends, although not all the way back to pre-pandemic levels.**

It is a time of extremes in interest rates. On the one hand, we have recently seen a very rare interest rate hike of 75bp in the US and a very rapid rise in bond yields in most of the world, driven by inflation running at close to 40-year highs. At the same time, real rates remain low globally and the ECB is yet to hike their policy rate to positive territory.

In our view, it will take significant interest rate hikes and likely also a recession to bring inflation under control again, but we expect a return to a world of low interest rates, in real terms, afterwards. To the extent that central banks, especially the ECB, can manage to stabilise inflation at a higher rate than before the COVID-19 crisis, nominal interest rates will be lifted correspondingly.

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What are natural rates?

In order to anticipate how high rates can go, we need to understand the concept of natural (or neutral) rate of interest (r^*). **The natural rate of interest is the real interest rate consistent with maintaining economic growth at its trend rate/full employment with stable inflation.** The concept is often used in conjunction with defining the monetary policy stance: If policy rates are below the neutral level, monetary policy is accommodative and if they are above, policy is restrictive. In the euro area – as in many other western economies – r^* has shown a more or less steady downtrend since the 1980s, due to a range of factors leading to an increase in desired savings and a decrease in desired investment.

Calculating the natural rate of interest accurately is a difficult exercise, as it has no static value and its estimates vary as its structural drivers (such as demographics, relative price of capital, public investments, savings behaviour and potential growth among others) change. Usually, the starting point is to determine whether an economy is in an equilibrium state, i.e. by looking at the difference between the actual GDP and potential GDP (or the so-called ‘output gap’). However, estimates of output gaps are also subject to frequent revisions and post-pandemic changes to spending patterns and fiscal stimulus have made estimates even more uncertain. Furthermore, there is not always a clear cut answer which neutral rate is consistent with economic equilibrium: e.g. in the case of the euro area, the output gap was closed both in 2004-05 and 2018-19, when ECB policy rates were either 2% or 0%. While precise estimates are hard to make, there is broad agreement that neutral interest rates have been declining globally for the last 40 years or so, and especially rapidly since the financial crisis.

If all investment and saving was done without regard to national boundaries, then arguably there should be a common, global neutral rate. However, there is a clear tendency for countries with high savings to have lower interest rates. Likely both voluntary and regulatory reasons create home markets with different neutral interest rates, although tightly linked by global capital flows.

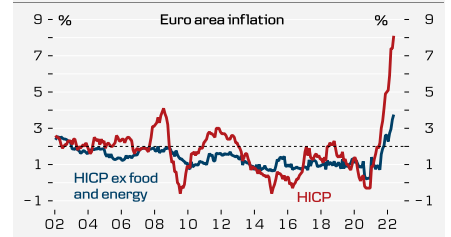
Low rates is a long term trend

Key phenomena that have pushed down the natural interest rate during the past decades include:

Increasing life expectancy: Over the last 30 years, life expectancy for the average European has increased by 5.8 years – an increase of 2.3 months every year. Similar trends have been observed in many other parts of the world. This naturally leads to an increase in the desire to save for retirement among the working age population (especially if welfare quality is a concern), as well as increased pressure from policy makers for greater personal savings in order to lessen the burden on public finances. In the very long run, the effect on the neutral interest rate should be zero, as the increased saving will at some point be turned into increased spending, but the effect is set to become even more negative over the coming 10 years at least. In principle, the need for more saving could be removed if the retirement age is increased in line with life expectancy, but that is currently only planned for Denmark, and even there, that plan is being questioned. And despite those plans, Denmark is among the countries that have seen the sharpest increase in retirement savings over the last 30 years.

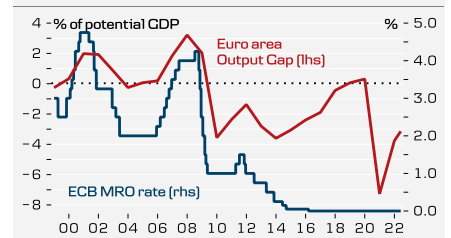
Slowly growing or declining working age population: Western countries have experienced large increases in their labour forces in the post-war period, from the baby boom generations and the wide scale entry of women in the formal labour market. The generations now replacing retiring baby boomers are smaller, and activity rates are increasing less rapidly. Also other countries, most notably China, are no longer seeing large

Low inflation despite low rates - until recently



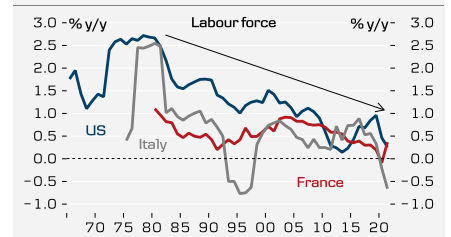
Source: Eurostat, Macrobond Financial, Danske Bank

Output gap is an imperfect measure



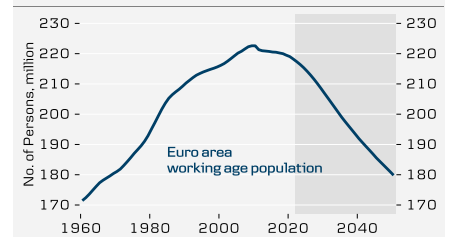
Source: OECD, ECB, Macrobond Financial, Danske Bank

Stagnating work forces



Source: OECD, Macrobond Financial, Danske Bank

Adverse demographics are weighing on Europe's growth prospects



Source: World Bank, Macrobond Financial, Danske Bank

demographically driven increases in their workforces. However, some countries are seeing workforce growth from immigration and from people retiring later as life expectancy grows, and the potential for more inclusion in the labour market remains large in many countries.

Lower productivity growth: There has been a steady decline in the productivity growth of labour in most OECD countries over the last 50 years. The implication is that new investments are less profitable and hence it lowers the demand for capital for investment. This is the basis for the “rule of thumb” that the long-term real interest rate is about equal to the rate of productivity growth. It is possible that technological breakthroughs or new productive uses of for example robotics could change that situation, at least temporarily, and some countries have seen unusually high productivity growth rates in the post-COVID recovery. However, we see it as most likely that productivity growth stays muted compared to the post-war boom.

Higher mark-ups and risk premiums: While real interest rates on for example German government loans have declined sharply until recently, there seems to have been little decline in the returns to business owners on real investments. This is surprising as lower borrowing costs should make it worthwhile to take on some of the less attractive investment projects and thus drive down overall returns. One possible reason for this is weaker competition between companies, leading to higher mark-ups and profits, all else equal. That is consistent with the lower share of income going to workers in some (but by no means all) countries. A higher difference between the risk-free interest rate and investment returns can also be the consequence of a decline in risk willingness among investors, which again could be linked to increased geopolitical uncertainty or to a changing risk profile among investors as their average age increases. In any case, the consequence is that the risk-free rate is pushed lower than it otherwise would be to create sufficient investment to match savings.

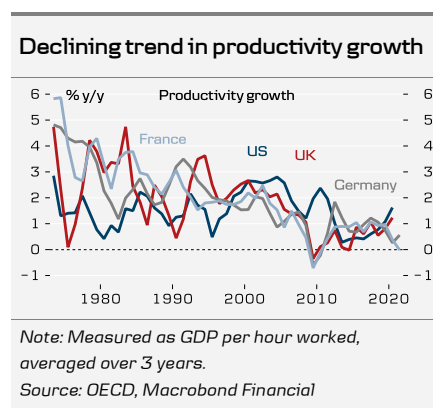
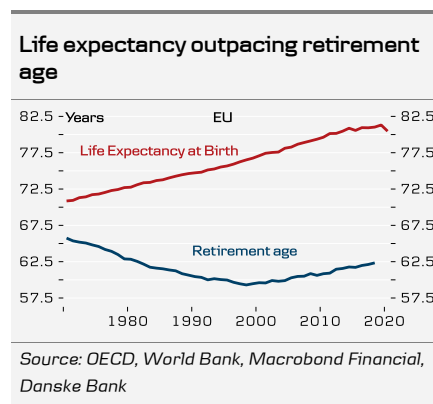
Shock from the financial crisis: The decline in the neutral interest rate has been especially pronounced following the financial and economic crisis of 2008-2009. One possible explanation is that tightened financial regulation in the aftermath of the crisis has effectively increased the premium over risk-free interest rates on risky loans. Possibly, the mere shock of the crisis, and maybe also the COVID-19 crisis, has also contributed to increasing risk aversion.

Higher inequality: A more unequal income distribution in many countries – for example, within Europe – may mean that a higher share of income goes to wealthy groups who are more inclined to save rather than consume. That increases the total amount of saving for a given income level, and hence lowers the neutral rate of interest.

Will drivers change going forward?

Most of the factors discussed above seem likely to continue to weigh on interest rates for the coming years. The demographic situation will change in the sense that in the Western world, there are currently some very large age cohorts in retirement, and over time, the balance between pensioners and working age population will shift some way back towards the latter. However, most studies agree that the biggest impact of demographics on the neutral interest rate is not through that balance but through the fact that longer lives increases the demand for retirement saving.

Of course, predictions of economic developments over a long time horizon are extremely uncertain, and we might see different scenarios play out. **One factor that might increase neutral interest rates is an increase in productivity growth.** Although the long-term



trend in productivity growth has been declining for many years, technological changes can cause prolonged periods of higher growth, such as the one around 2000. For example, breakthroughs in robotics or self-driving cars might create the potential for large productive investments and hence demand for capital. More structural labour shortages amid declining labour force growth could also boost capital investments in automation and digitalization.

The impacts from climate change to neutral rates are ambiguous. On the one hand, the urgency for societies to mitigate and adapt to climate change creates a large need for investments and innovations that could boost potential growth and via increased demand for borrowing raise r^* . On the other hand, capital destruction as a result from extreme weather events due to climate change could work the opposite way and reduce potential growth.

Apart from increased fiscal spending and investments in Europe's green transition, similar investments on digitalisation and defence could raise potential growth and exert an upward impact on r^* . *Summers and Rachel (2019)* already argued before the COVID-19 crisis that a rise in public debt will lift the equilibrium interest rate. In academic debates, the argument is gaining ground that governments should take advantage of low interest rates to increase their borrowing and increase investments that would raise the potential growth rate in the economy. However, there are also many other factors that suggest that the demand for investments will still undershoot demand for savings, keeping natural rates levels depressed.

The COVID-19 crisis has caused a sharp increase in government borrowing. For 2020-2021, the aggregate public deficit of OECD countries is 17.8% of annual GDP, and costs related to the pandemic have continued to some extent into 2022. Academic studies disagree about what effect that should have on interest rates, but looking at an average of studies, a likely effect is about $\frac{3}{4}$ of a percentage point higher neutral interest rates, if government debt to GDP is increased by 20 percentage points.

The COVID-19 crisis could have affected r^* in several different ways. During the pandemic, the propensity of households to save reached unprecedented levels. However, by the end of 2021, the savings ratio had more or less returned to pre-pandemic levels, suggesting that savings were largely 'forced' rather than pre-cautionary. Furthermore, COVID-19 and the Ukraine war might also have made investors more aware of the risk of disasters, increasing demand for safe assets. *Kozłowski et al. (2020)* predict that changed perceptions of risk in the aftermath of the pandemic will depress r^* by 67 basis points. A slightly controversial argument that has been put forward is also that growing income inequality might play a role, as the rich, who tend to save a higher proportion of their income, have relatively been less affected by the pandemic than the poor. *Auclert and Rognlite (2020)* find that nearly one-fifth of the decline in r^* since 1980 can be attributed to rising inequality.

Research also suggests that previous pandemics have suppressed interest rates for decades after. *Jordà et al (2020)* studied 19 pandemics since the 14th century and estimate that even 20 years after a pandemic, interest rates are around 1.5 percentage points lower than they would otherwise have been. Only around four decades later, the natural rate returns to the level it would have had if the pandemic had not taken place. Overall the COVID-19 pandemic has many different characteristics than previous pandemics and is unlikely to be as deadly as the Black Death or Spanish flu, and will hence have less effect on the working age population. Reduced labour force participation in some regions due to the pandemic could, however in a more limited way, depress r^* for years to come.

Neutral rate – US and Euro area

To assess the degree of monetary accommodation or tightening, policymakers usually compare policy rates to neutral rates in nominal terms, i.e. the real neutral rate plus inflation expectations. The latter is usually implicitly assumed to be equal to the central bank’s inflation target over the long-term, but there are arguably upside risks to nominal neutral rates estimates to the extent that the COVID-19 pandemic and subsequent shocks have also led to a more permanent rise in inflation expectations. In practice, policymakers will probably only know the true neutral level in hindsight, making the job of accurate monetary policy calibration even more challenging.

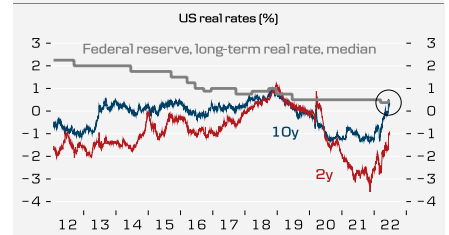
ECB members such as *Bank of France Governor Villeroy de Galhau* have mentioned **nominal neutral rate estimates between 1-2% for the euro area and 2-3% for the US**. In his June speech, *Federal Reserve Chairman Jerome Powell* said that they see the longer run neutral rate ‘in the mid-twos’ i.e. at around 2.5%, in nominal terms. Looking at market pricing, the 10-year US real yield exceeded the estimated level of neutral rate in June, implying that financial conditions may already be tight enough to have a restrictive impact on economic activity.

Neutral rate – A Nordic perspective

In a *Staff Memo from 2018*, **Norges Bank** discussed the **level of the neutral real interest rate** and concluded that it is **estimated to be around 0%**. This finding was also reiterated in the *June 2022 Monetary Policy Report*, where Norges Bank referred to the neutral (real) rate to be in the range of -0.5% to +0.5%. Norges Bank uses different models to estimate r^* , where the average of the model estimates have dropped from ca. 2.5% around year 2000 to ca. -0.5% since 2016. Notably, the different economic models used by Norges Bank to estimate r^* give a wide range of results highlighting the uncertainty around this topic. For some years in early 2000’s, the range was more than four percentage points wide. At the same time, market-based measures, where Norges Bank looks at 5y5y yields adjusted for inflation expectations, point to somewhat higher r^* than the average model estimates.

Adjusting for inflation and money market premium Norges Bank see a **neutral nominal policy rate around 1.7%**. This implies that the policy rate path, peaking at 3.1% in 2023, will be contractionary by the end of 2022, which explains the output gap and inflation moving closer to target over time.

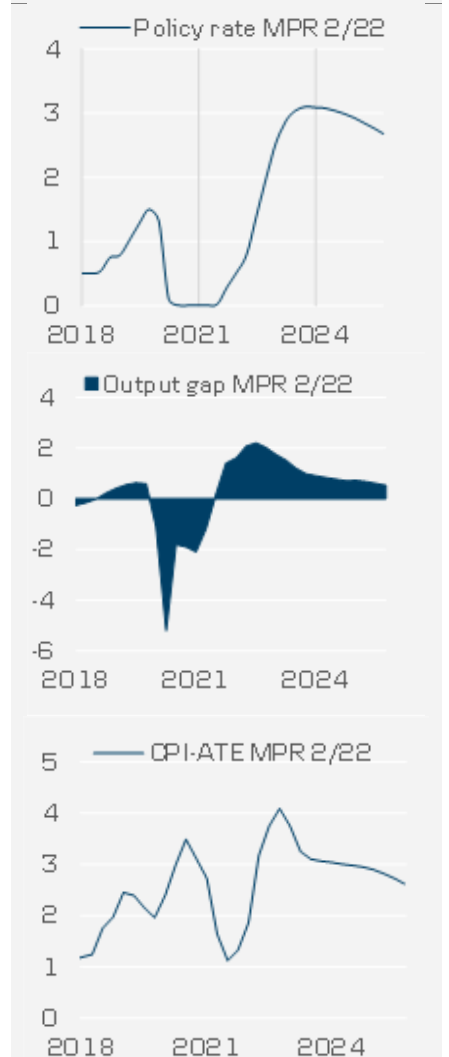
Long US real rates exceeded the neutral rate in June



Source: Federal Reserve, US Treasury, Macrobond Financial, Refinitiv, Danske Bank

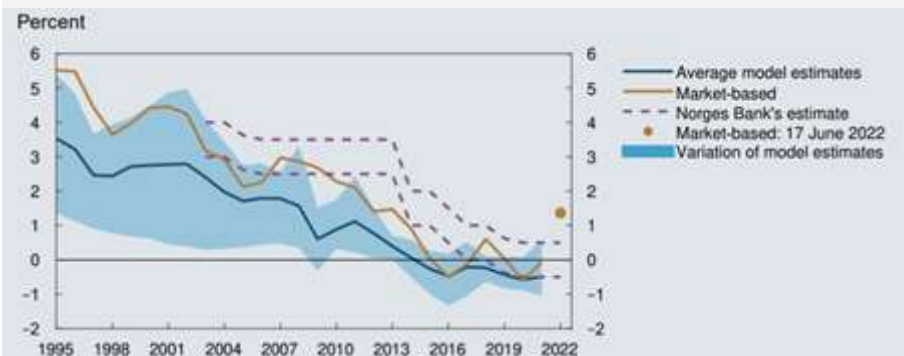
Note: Past performance is not a reliable indicator of future results

Norges Bank Policy rate path peaking above neutral around 3.1%



Source: Norges Bank

Norges Bank estimates of neutral real interest rate

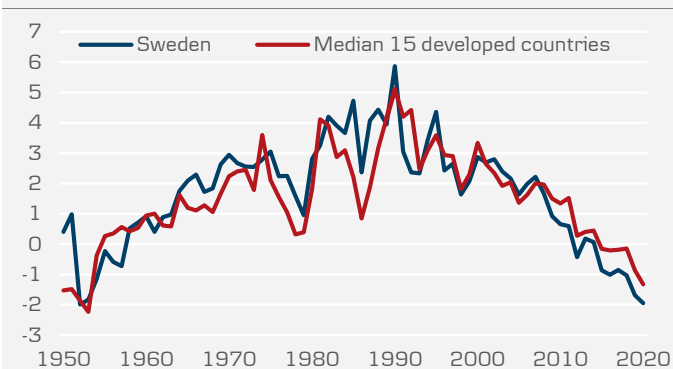


Source: Norges Bank

The Swedish Riksbank discussed the topic of long term real interest rates in an article in the *Monetary Policy Report from the November 2021 meeting*. The Riksbank used a similar starting point as Norges Bank, saying that free capital mobility implies that the (risk adjusted) real interest rate should be similar across the western world. The Riksbank makes a good illustration of this point using modelled long-term real rates for Sweden and 15 other economies for the period 1950 and 2020, where the Swedish real rate is closely following the international development. Looking at market priced measures, such as a generic 5y5y real rate, we can also note that Sweden closely follows Germany, giving support to the argument that what constitutes a neutral real rate in Sweden (or Norway) is primarily driven by international factors.

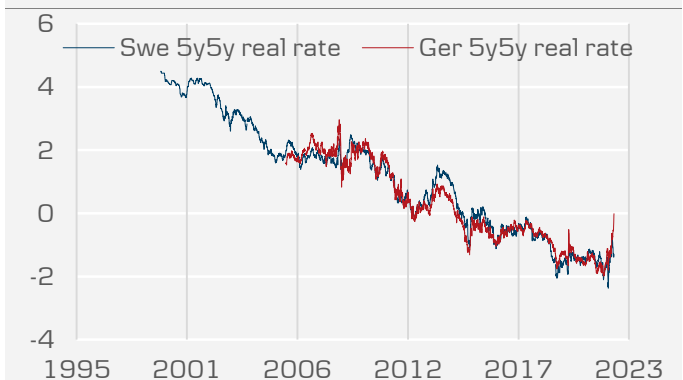
The Riksbank have not as clearly as Norges Bank communicated what they consider a neutral real interest rate. Given the above argument about free capital mobility, around 0% for Sweden as well seems reasonable to assume, and this is also what seems to be implied looking at the Riksbank’s rate paths and projections on the economy from the February 2022 and April 2022 Monetary Policy Reports. With the end point in the April repo rate forecast period just below 2%, and the inflation forecast ending in the same area, the implied real policy rate path is moving towards 0% at the end of the forecast period. Given that the policy rate path can be considered neutral, it seems like the **Riksbank also estimates that the neutral real interest rate is found around 0%**.

Riksbank modelling of Swedish and international long-term real yields 1950-2020 (%)



Source: Riksbank

Generic 5y5y real yields in Sweden and Germany (%)



Source: Danske Bank

Note: Past performance is not a reliable indicator of future results

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None

Date of first publication

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Report completed: 29 June 2022, 15:00 CET

Report first disseminated: 29 June 2022, 10:40 CET